



**CITY OF LODI
COUNCIL COMMUNICATION**

AGENDA TITLE: Adopt resolution authorizing the City Manager to allocate Public Benefit Program funds and/or to execute contracts with professional service organizations for technical assistance for implementing designated Public Benefit-funded programs as identified below for FY07 (EUD):

- a) Lodi Solar Schoolhouse Project (\$25,000);
- b) Lodi LivingWise Program (\$20,000);
- c) Lodi Appliance Rebate Program (\$30,000);
- d) Lodi Energy Efficient Home Improvement Rebate Program (\$70,000);
- e) Lodi Commercial Rebate Program (\$25,000); and
- f) Industrial Customer High Efficiency Rebate Program (\$140,000)

MEETING DATE: August 2, 2006

PREPARED BY: Electric Utility Director

RECOMMENDED ACTION: Adopt a resolution authorizing the City Manager to allocate Public Benefits Program funds and/or to execute contracts for professional service organizations for technical assistance for implementing the following Public Benefit-funded programs for FY07:

Lodi Solar Schoolhouse Project - \$25,000: Allocate funds to continue this energy education project for private and public school students and educators for FY07. The project funds the annual Lodi Solar Schoolhouse Olympics, teacher mini-grants for solar-related projects, and professional services provided by the Rarus Institute (this organization provides assistance to Electric Utility staff regarding renewable energy resources, such as solar and wind technology). Also by way of this Council action, a professional services contract with the Rarus Institute will be extended for the 2006-2007 fiscal year.

Lodi LivingWise Program - \$20,000: Allocate funds to extend this energy conservation program for FY07. This program provides students and teachers at Lodi area schools with a useful tool that demonstrates energy and water conservation. For the 2006-2007 school year, EUD is once again proposing to provide up to 442 energy and water conservation kits to 6th grade students throughout Lodi. Each kit contains a compact fluorescent lamp, an Electro luminescent (energy efficient) Night Light, a low-flow showerhead, faucet aerators, a water leak test for toilets, teflon tape, tape measure, air temperature monitor, an energy efficiency CD-ROM game, tips on energy/water conservation, and specific ways to weatherize/insulate the home. There are kit pre-installation and post-installation course discussions that are provided to the instructors, to ensure that the students are fully engaged in the project. To "kick-off" the project, an Electric Utility staff member visits each classroom to reinforce the significance of the project and discuss the importance of energy/water conservation.

APPROVED: _____

Blair King, City Manager

Adopt resolution authorizing the City Manager to allocate Public Benefit Programs and/or to execute contracts with professional service organizations for technical assistance for implementing designated Public Benefit-funded programs as identified below for FY07 (EUD):

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August 2, 2006

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Lodi Appliance Rebate Program - \$30,000: Allocate funds to extend this energy conservation program for FY07. This program provides specific rebates for energy efficient refrigerators, energy efficient dishwashers, and energy/water efficient clothes washers. Under the program, eligible customers would receive the following rebates:

- > EnergyStar® refrigerator \$50 rebate
- > EnergyStar® dishwasher \$25 rebate
- > EnergyStar® clothes washer \$75 rebate

Customers must purchase the aforementioned home appliance(s) from one of the six participating Lodi retailers, including: Anderson's Maytag, Ben's Appliance, Kundert & Bauer, Les' Appliance, Lowe's of Lodi, and Reo's Appliance.

EnergyStar® appliances consume, on average, twenty percent to thirty-five percent less electricity annually than a standard home appliance (refrigerator, dishwasher and clothes washer), which makes the purchase and installation of a high efficiency home appliance an extremely attractive, and cost effective, energy conservation measure.

Lodi Energy Efficient Home Improvement Rebate Program - \$70,000: Allocate funds to extend this energy conservation program for FY07. This program provides specific rebates for air duct replacement, air duct repair, attic insulation, radiant barriers, whole house fans, attic fans, ceiling fans, and windows/shade screens/window tinting for residential customers.

For the 2006-2007 fiscal year, the EUD is proposing the following conservation measures, and rebate amounts:

- | | |
|------------------------------------|-----------------|
| > air duct replacement | \$500 |
| > air duct repair | \$150 |
| > attic/wall insulation | \$ 0.15/sq. ft. |
| > radiant barrier/thermal shield | \$150 |
| > whole house fan | \$100 |
| > attic fan | \$ 40 |
| > ceiling fan (max. 2 per address) | \$ 25 |
| > shade screens/window tinting | \$ 0.50/sq. ft. |

Note- The maximum allowable rebate under this program is \$250 per customer service address, with an additional \$150 allowance for air duct repairs, or an additional \$500 allowance for air duct replacement, if eligible. Customers must also consent to potential pre- and post-inspections of their property.

By installing some, or all, of the aforementioned energy conservation measures, residential customers may decrease monthly energy consumption from five percent, to as much as thirty percent (the actual energy savings will vary depending upon the number of conservation measures installed, the quality of installation and personal energy use patterns).

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Lodi Commercial Rebate Program - \$25,000: Allocate funds to provide rebates to commercial customers under the electric rate classification of G-1 and G-2 for FY07. Specifically, the program offers a dollar-for-dollar rebate of up to \$250 for the purchase and installation of any/all of the following energy conservation improvements:

- ceiling fans; attic fans/ventilators; weather-stripping; attic insulation; air duct replacements/repairs; window tinting/shade screens/awning covers; Heating, Ventilation and Air Conditioning (HVAC)/refrigeration (such as an annual diagnostic and preventative maintenance service for each HVAC unit and/or refrigeration system).

In addition, eligible customers may receive a rebate of 15 percent or \$750 (which ever amount is less), for installing a high efficiency mechanical system (13+ Seasonal Energy Efficiency Rating (SEER) air conditioner), or a lighting improvement/retrofit.

Participating customers must be on the published G-1 or G-2 electric rate schedule, current on all City of Lodi utility charges and consent to a potential pre- and post-inspection. Since the programs inception, over 600 small businesses have reduced energy consumption by installing some or all of the aforementioned energy efficiency measures, and received a rebate from the City of Lodi. The average annual energy savings that can be achieved is 5 percent to 25 percent, depending upon the energy efficiency measure(s) installed.

Industrial Customer High Efficiency Rebate Program - \$140,000: Allocate funds to extend this energy conservation program for FY07. Eligible customers will have the opportunity to receive a maximum rebate of \$10,000 for qualifying projects, including: lighting retrofits, process/manufacturing equipment & heavy refrigeration improvements, chillers and mechanical equipment change-outs, building automation/energy management control systems improvements and building envelope retrofits.

An approved rebate will be based upon the following criteria:

- a minimum of 10 percent electric energy savings per energy efficiency measure installed;
- a minimum of 10 percent operations and maintenance savings per energy efficiency measure installed; and
- inclusion of all required engineering, design, labor, and materials documentation (a customer seeking a utility rebate must provide a detailed description of the energy efficiency project; calculated energy savings audit associated with the project; calculated operations and maintenance savings associated with the project; total "turn-key" cost of the project; design/engineering specifications, design drawings, equipment manufacturer cut sheets; and baseline energy consumption data of the existing equipment being removed).

The total rebate available in a 12-month period for qualifying projects (one per customer of record) is \$10,000. The rebate is calculated on total kilowatt-hour (kWh) savings; for FY07 program, the rebate per kWh of savings will be \$0.15 (i.e., if a customer develops, and presents to the utility, a project that will

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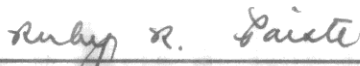
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save 50,000 kWh in a year, the total rebate 50,000 kWh 'x' \$0.15= \$7,500).

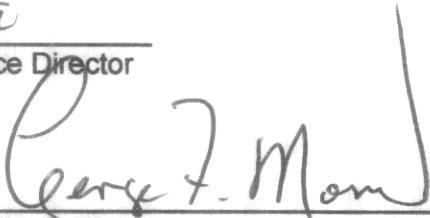
"The utility will advertise an "open season" for accepting industrial rebate applications and will award those proposals that are judged to have highest efficiency benefit/cost ratio. Based on past experience, EUD expects to receive qualified proposals well in excess of the proposed funding level."

FISCAL IMPACT: \$310,000

FUNDING: \$25,000 / 164608 – Public Benefits Program – Renewable Energy Resources
\$285,000 / 164605 – Public Benefits Program – Demand-side Management



Ruby Paiste, Interim Finance Director



George F. Morrow
Electric Utility Director

Prepared By: Rob Lechner, Manager, Customer Service and Programs

GFM/RL/lt

Attachments

cc: City Attorney

‘Solar Schoolhouse Lodi’



Presented to:
City of Lodi Electric Utilities Department
Lodi, CA

Prepared by:
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May 17, 2006

Solar Schoolhouse Lodi

Education Energized by the Sun

Background

Founded in 1998, The Rahus Institute is a 501c3 non-profit organization dedicated to the promotion of renewable energy and resource efficiency. Our efforts thus far have primarily been to promote the use of personal renewable power, ie. photovoltaics & small wind energy located at residential or commercial building sites. Activities have included: program support, workshops, presentations, exhibit design, website development, consultations, etc. The Rahus Institute does not sell renewable energy equipment nor receive commissions for the sales of any particular renewable energy equipment.

Solar Schoolhouse

The Solar Schoolhouse (SSh) is a statewide program under development by The Rahus Institute. The City of Lodi has been a key participant in the development of the program. Lodi is the first city to attempt a district-wide rollout of the program, following smaller pilot efforts in other communities. ***The overarching Goal of Solar Schoolhouse-Lodi is to increase Energy Literacy in schools and the community.***

Fourth year (2006-07) accomplishments for *Solar Schoolhouse Lodi* include:

- Two teachers attended the weeklong Summer Institute for Educators (Summer 2006)
- 330 Students participating in the Lodi Solar Schoolhouse Olympics [May 13th, 2006]
- 30 students participate in local solar car derby at Lodi Academy (SDA)
- Increased diversity in local participation for judges & volunteers at the Olympics, improving Lodi foundation.
- Enlisted assistance of local coordinator (Lynne Greulich) for Olympics and other logistics.
- Conducted Two Energy Smart Workshops for the community on topics of 'The Future of Renewable Energy' (Donald Aitken) and 'Solar for You' (Tor Allen)
- Assisted with special projects at several schools, including the building of 2 solar powered recreational boats.
- Co-sponsor of development of 'Your Solar Home' *Student Guidebook*, targeting grades 4-6, incorporating piloted lessons into complete guidebook. YSH Guidebook published in January 2006 and distributed to all participating teachers. Also distributed through Lodi USD Media Center.
- Co-sponsor of development of the film and book 'Solar Decathlon 2005 – A Solar Village on the National Mall'. The DVD follows the process of designing, building, and competing in this unique solar home competition. As a teaching tool, the DVD and book help to illustrate a wide variety of solar design principles using real buildings.
- Conducted Solar Schoolhouse Olympics orientation for participating teachers.
- Lodi activities featured in 2006 Solar Schoolhouse Calendar for 2006. Calendar distributed within Lodi and to 5000 teachers statewide.
- Installation of 3 Solar PV Pole mount systems – 1 kW each at 3 schools (completion summer 06)

Third year (2004-05) accomplishments for *Solar Schoolhouse Lodi* include:

- Three teachers attended the weeklong Summer Institute for Educators
- 255 Students participating in the Lodi Solar Schoolhouse Olympics [May 7th, 2005]
- Greater diversity in local participation for judges & volunteers at the Olympics, improving Lodi foundation.
- Enlisted assistance of local coordinator (Lynne Greulich) for Olympics and other logistics.
- Conducted Two Energy Smart Workshops for the community on topics of 'Energy Future' and 'Solar Power', averaging 60 attendees at each workshop

- Assisted with projects at several schools. Revision of school fountain project at 2 Lodi USD schools.
- Formed a Lodi Solar Schoolhouse Working Group, consisting of teachers actively integrating solar energy activities in their classrooms. Working Group to share their experiences in June 2005 with educational community.
- Co-sponsor of development of 'Your Solar Home' *Student Guidebook*, targeting grades 4-6, incorporating piloted lessons into complete guidebook.
- Conduct several Solar Primer workshops for teachers and resource specialist at LUSD Media Center.
- Lodi activities featured in inaugural Solar Schoolhouse Calendar for 2005

Second year (2003-04) accomplishments for *Solar Schoolhouse Lodi* include:

- One teacher attending the weeklong Summer Institute for Educators
- Expand outreach to middle and high schools
- Conduct 2 full day workshops – 1) Model Solar Home Building; and 2) Solar Fountain Design/Build.
- First Solar Schoolhouse Olympics May 15th.
- Olympics stimulates numerous after school solar energy clubs to work on projects.
- Co-sponsorship of development and creation of 'Your Solar Home' Video. Completion late May 2004.
- 'Your Solar Home' video distribution to all participating schools – late May 2004.
- Continued support for teachers developing classroom lessons based on Solar Cell & Solar Technology Kits.
- Develop solar project tip sheets for cars, model homes, fountains, ovens, sculptures.
- Develop connection between Photosynthesis and Photovoltaics as classroom connection. Fact sheet developed.

First year (2002-03) accomplishments for *Solar Schoolhouse Lodi* include:

- Conduct full-day teacher workshop for k-8 private schools in Lodi
- Conduct 2 full-day workshops for Lead Science (k-6) Teachers of Lodi Unified School District
- Conduct full-day solar car/fountain/pond project-based workshop for teachers
- Develop set of standards-based lessons for k-6 grade levels
- Provide Solar Technology Kits and Solar Cell Classroom Kits to LUSD and private schools
- Develop and provide Renewable Energy Resource Library for LUSD and private schools
- Assisted with special projects: Solar Cars at St. Anne's and Ecovillage at SDA.
- Develop and provide solar toolkit to Africa-bound Lodi teacher. Teacher will send updates on 1year teaching experience.

Project Status

Solar Schoolhouse Summer Institute – For educators from Lodi have attended the Solar Schoolhouse Summer Institute for Educators, over the past 2 years. The Summer Institute is a 5 day session of project building and hands-on activities, designed to provide educators a solid foundation for integrating solar energy projects in their classrooms. Joel Hadsall and Isabel Cuerpo of Bear Creek HS (LodiUSD) attended in 2005 and now include solar activities in their classrooms. Several additional Lodi educators will be attending the summer institute in 2006.

More on the Summer Institute Experience is posted online at

http://www.solarschoolhouse.org/ssh/ssh_sie2006.html

<http://www.solarschoolhouse.org/solareclips/2003.10/20031014-7.html>

<http://www.californiasolarcenter.org/solareclips/2004.06/20040706-1.html>

Solar Schoolhouse Olympics (SSO). In an effort to attract new and *non-science* teachers to explore solar energy education and projects for their classrooms, the Solar Schoolhouse Olympics debuted successfully in Spring of 2004. In it's 3rd year, the May 13th 2006 event attracted 330 student participants.

Guidelines have been developed which describe the events (model solar home, solar cooker, model solar cars, solar hot water heater, sculpture, solar fountain, art, public service announcement (PSA), solar comics). The Olympics have stimulated a lot of activity and interest in building projects and attracting non-science teachers. Event kits were developed and distributed free to teachers wishing to participate on a first-come/first-serve basis (example: solar module plus gears/wheels for the model solar car event). A webpage was set up to provide documents and tips for teachers of the Lodi program.

<http://www.solarschoolhouse.org/oldssh/sso/lodi/sso-lodi.html>

Several workshops were offered this past year to provide teachers a better sense of project building and solar energy basics, and to prepare them for working with their students.

Teachers have indicated that the Solar Schoolhouse Olympics provides a goal helping to motivate students to participate.

In 2006, local coordinator Lynne Greulich helped coordinate many of the local logistics. Lynne helped recruit volunteer judges from the community, worked on site logistics, delivered event kits, and much more. Additionally, a new game, called 'Who wants to be an Energy Expert?', was introduced to test students' knowledge of the topics. Questions were taken from the 'Your Solar Home' video and Local Lodi Energy Facts.

This event is becoming a Lodi mainstay. In 2006-07, we plan to strengthen the foundation of the event, such that it can stand on it's own. Toward this goal, an organizing committee will be formed - made up of participating teachers and volunteer judges.

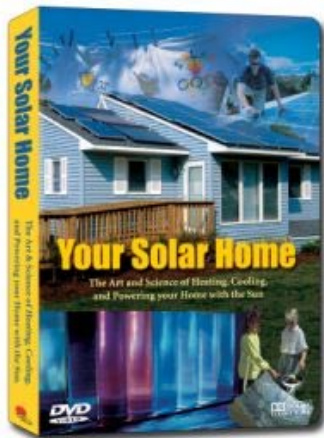


Andy Miller (Nichols Elementary) with his winning solar cooker entry (May 2006)

In an effort to increase participation, we plan to continue recruiting more schools to participate through early advertising, and scheduling workshops for teachers, consultations for students, and including testimonials from participating teachers.

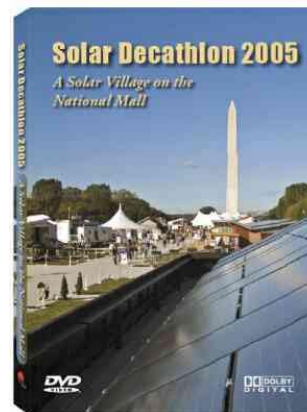
Teacher Workshops: A limited number of workshops were scheduled this year. Teacher workshops continue to be a primary method of reaching a greater number of classrooms in an efficient manner. With input from Lodi Educators, a schedule of workshops will be established and distributed early in the school year. In 2006-07, we will also look at opportunities to partner with SMUD in offering Solar Primer workshops to Lodi teachers, sharing the cost to offer such workshops.

Material Development: As with all Solar Schoolhouse projects, new materials evolve during the course of the year. In partnership with a few other co-sponsors, we completed an instructional video titled “*Your Solar Home – The Art and Science of Heating, Cooling, and Powering your Home with the Sun*”. The video is intended to act as an introductory to the classroom, providing terminology and the basic scientific principles. Videos were distributed to schools in the Lodi area in Fall 2004 and to all new participating schools. The YSH video provides a solid base for 4-6 grade science, teaching about thermal energy (conduction, convection, and radiation) as well as converting sunlight to electricity. It has also served older classes well.

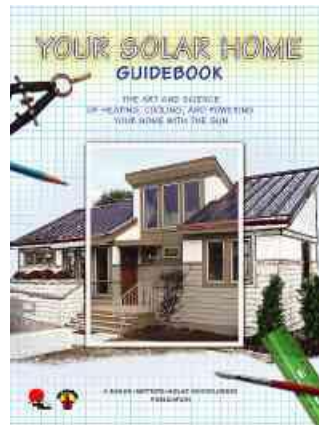


The ‘sequel’ to the YSH video, tentatively titled “*Solar Decathlon 2005 – A Solar Village on the National Mall*” is set to debut on May

25, 2006. The Solar Decathlon (www.solardecathlon.org) is an event where universities across the country design, build, and assemble Zero Energy Homes on the MALL in Washington DC for series of competitions. These homes all have the same goal, which is to be net zero energy consumers. Yet, they accomplish this goal in a variety of ways. Nowhere else can you find this diversity of true zero energy homes. The video and book (near completion) will document the homes, with a special focus on the team from Cal Poly San Luis Obispo, as the California representative. This new resource, together with the YSH video, will provide an excellent reference for students designing model solar homes. Copies will be available to Lodi Educators. A special showing is planned for the community.



YSH – Student Guidebook – A guidebook is complete and was published in January 2006. The guidebook is targeted toward 4th through 6th grade, providing a set of reading and activities, that all lead toward a culminating project – the model home. This guidebook is the result of piloting lessons in classrooms these past few years, and will provide a definitive resource for introducing solar energy education in the classroom. Copies have been distributed to participating teachers and also through the LODIUSD Instructional Media Center. We will continue to make these available to interested teachers in the coming year.



Grid-tie Solar Electric systems with Realtime monitoring–

A small (<1000watt) solar electric systems will be installed at the 3 winning Solar Schoolhouse Olympics schools. One Elementary, Middle and High School. Rahu is currently working to pre-certify a single pole mount design through the California Division of State Architect(DSA), the construction authority for k-12 schools in California. Rahu will work with the Lodi Unified facilities management to install the pole-mount systems. As of May 2006, the design is currently going through DSA. Installation is expected to be completed in the summer. A ground-breaking dedication is schedule for June 13th, 2006 at Reese Elementary to celebrate the students efforts.



Grid-tie pole mount design for winning schools of Solar Schoolhouse Olympics '04

A real-time monitoring system will record performance data and make the system accessible to students, teachers, and the community via the internet. Rahu, in collaboration with Fat Spaniel Technologies, has developed a set of interactive webpages to present the data. A low cost hardware solution makes this an affordable approach, such that there will be several systems which can be compared/studied in the local area. The web solution will maximize the educational value of these systems. In addition to their own school performance, students can compare with schools across the country. http://www.solarschoolhouse.org/newssh/schooldata_live.html



Main Data page for all schools with grid-tie solar electric systems

Sustainable Solutions Grants – Introduced this year to provide teachers funding for innovative projects. Three schools applied and received grants for a total of \$2350. Projects include the After School Energy Program at Nichols School lead by Larry Shinn. We plan to offer these small grants again next school year.

Project Description

Building upon the progress made these past 4 years (2002-06), several tasks are proposed for Year 5 of the program, designed to support the accelerated adoption of curriculum, expand the outreach to broader audience, and enhance the experience. Proposed tasks are described below.

Task 1. Energy Smart Workshops – Clean Energy Topics

Based on the great response to Clean Energy topic workshops conducted in this past year, Rahu will continue work with Lodi Electric to establish a regularly scheduled workshop/lecture series for the public. The series will be presented under the name 'Lodi Energy Smart Workshop' name, and is proposed as a means to bring a variety of subjects to the community of Lodi. Lectures will be held at Hutchins Street Square, typically once a month starting in September. Potential topics include: Wind Energy, Hydrogen Fuel Cells, Solar Electric for Commercial Applications, The Language of Energy, History of Solar Energy Use, Biodiesel – alternatives to gasoline, etc. Each workshop will have handouts, and a set of web resources for participants to explore the topic further.

The workshops are open to both community members and local students, providing an extension for students to explore additional topics not available at their schools. Several teachers have indicated that they would give students extra credit for attending the workshops. The Energy Smart Workshop series is an opportunity to create a dialogue with community members and provide a forum to learn and discuss energy topics and issues.

Additional, the idea of a Sustainable Energy Film Series will be explored, as a venue to air timely films for presentation and discussion.

Task 2. Sustainable Solutions Grant

2006-07 we will offer mini grants of up to \$750 to Lodi Educators to help fund projects and activities they would like to implement at their schools. The grants will be awarded on competitive basis, early in Fall 2006. Educators will be required to provide a written assessment of their experiences at the end of the year. In this manner, new, effective and interesting activities and approaches, can be identified and shared with others in the area. A total of 5 mini-grants are proposed. Rahu will manage the solicitation and award process. Rahu will also provide assistance to the schools in form of consultation and/or assistance in finding materials.

Task 3. Enhance materials and provide additional support

Work with Lodi Unified School District and Lodi private schools to identify additional material needs to support the training initiated during school year 2006-07. Explore new approaches to reach greater numbers of teachers in the K-12 grade levels. Build upon the relationships that we've established to help make it an integral part of school curriculum. Examples include exploring the Regional Occupation Program.

Task 4. Lodi Solar Schoolhouse Olympics

This event is on it's way to becoming a Lodi mainstay event. 330 students participated in 2006. Interest continues to grow. The diversity in events allows schools to pick an event that they are interested in participating. For 2007, an organizing committee will form to foster continued local ownership of the event. Rahu is adapting the guidelines, developed over the past 3 years, into a Guidebook for local communities to use in running their own Solar Schoolhouse Olympics. Rahu will provide the guidelines, orientation, teacher/student support, free event kits, and conduct the event. May 19th, 2007 is the proposed date for 2007. Lodi High School has become the default host.

Task 5. Solar Schoolhouse Summer Institute -

Scholarships for up to **3** educators from Lodi Schools. Teachers attending this summer seminar will learn about the science and history of heating, cooling and powering our homes with the Sun. Participants will build solar cookers, model passive solar homes, solar electric cars/fountains, and conduct energy audits. We will visit several local low-energy, solar buildings to see these designs in practice. In addition to learning the science of proper building design (e.g. thermodynamics, electricity, seasonal changes) and how to fit these exercises into your curriculum, participants will walk away with practical knowledge that they can apply in their own lives. Integrating solar energy education into your curriculum can provide an element of excitement and hope for the future. Educators attending the summer session will continue to develop as mentors for other teachers at their school/district.

http://www.solarschoolhouse.org/ssh/ssh_sie2006.html

Task 6. Teacher training workshops

Our strategy for information dissemination continues to focus on a “train-the-trainers” approach. By conducting workshops for teachers we hope to provide them with a level of comfort with the subject, such that they take ownership and integrate these subjects into their classroom. In this manner, renewable energy becomes a default lesson (or lessons) at the school, and is not dependent on funding cycles. While we have made progress in reaching more educators this current year via workshops, we propose conducting **1** full-day and several after-school workshops during FY06-07, to continue the momentum. We plan on enlisting veteran ‘solar’ teachers to help teach the workshops, such that they will be able to teach these solo in the future.



July 2006 Solar Schoolhouse Calendar featuring Lodi

Task 7. Consulting

Provide consulting on solar and renewable energy topics on an as-needed basis. Topics can include: legislation, incentive program design, customer support, interconnection issues, etc.

Project Team

Primary Team members are:

Tor Allen *Executive Director, The Rahun Institute*

Founder of The Rahun Institute, a non-profit, educational organization with a focus on renewable energy

A graduate of University of California, Santa Barbara with a B.S. and M.S. in Mechanical Engineering, Tor has more than 14 years experience in the renewable energy field including: design, research, marketing, program and policy development, installation work, and teaching. Current projects include: The California Solar Center—a web-based source of solar energy information relevant to California; Solar e-Clips—a monthly e-newsletter covering current stories and legislative updates; organizing Solar Forums throughout California; coordinating the California PV Utility Manager working group; and Solar Schoolhouse—a hands-on, project-based solar for schools program.

Hal Aronson, Ph.D, *Co-Director, The Rahun Institute, Solar Schoolhouse*

Hal develops curriculum and resource kits on renewable energy and energy conservation and conducts training seminars for the Solar Schoolhouse program. Hal's work as a carpenter in the early 80's led to the design and construction of a passive solar off-grid home for his parents in the Santa Cruz area, providing a hands-on, real world experience that can be brought into the classroom. Hal holds a Ph.D. in Environmental Sociology, an M.A. in Sociology, a single-subject teaching certificate, and a B.A. in Politics from the University of California, Santa Cruz.

Clay Atchinson, *Director of Media Development, The Rahun Institute*

An award-winning videographer and certified photovoltaic installer, Clay has an interdisciplinary B.A. in Environmental Studies and Fine Art, and an M.A. in Art Education. For several years, he has taught solar electricity and digital video production classes at colleges in the San Francisco Bay Area, including California State University, Sonoma. Clay wrote, directed, and produced the animations for the films *Your Solar Home* and *Solar Decathlon 2005*.

John Perlin, John Perlin has authored *A Golden Thread: Twenty-Five Hundred Years of Solar Architecture and Technology* (with Ken Butti), *A Forest Journey: The Story of Wood and Civilization*, and *From Space to Earth: The Story of Solar Electricity*. He was recently the principal researcher and writer of the documentary film *The Power of the Sun* with Nobel Laureates Dr. Walter Kohn and Dr. Alan Heeger. John assists in curriculum development, lab design, and educational materials.

For additional information visit www.rahun.org or www.solarschoolhouse.org

Rahus –Solar Schoolhouse Contract

This contract between The City of Lodi (hereinafter “Lodi”) and The Rahus Institute (hereinafter “Rahus”) sets forth the terms and conditions under which Rahus will provide the services described herein. Lodi and Rahus agree as follows:

SCOPE OF SERVICES

Rahus agrees to perform a solar energy education program for Lodi in strict conformity with the terms and conditions of this contract. Rahus will provide the following services to Lodi under this agreement:

- Develop and distribute a menu of educational options to Lodi Schools at beginning of school year
- Organize and Conduct 4th Annual Solar Schoolhouse Olympics- Spring 2007
- Help develop topics, speakers, and presentations for Lodi Energy Smart Workshop series and/or Sustainable Energy Film Series.
- Distribute new Solar Energy Curriculum materials to Lodi teachers – Your Solar Home (DVD and guidebooks), & Solar Decathlon 2005 DVD.
- Administer Sustainable Solutions Grant applications and distribution of funds.
- Provide project support in the classroom and via consultation with teachers.
- Enhance materials and provide additional support
- Draft and publish Project Highlights (aka ‘Class Notes’)
- Enhance LUSD Media Center as distribution center of RE materials/kits.
- Sponsor Educators to attend Solar Schoolhouse Summer Institute 2006
- Conduct 2 full day teacher training workshops
- Participate in the Annual Solar Schoolhouse Calendar, highlighting Lodi projects. Distribute to Lodi teachers.
- Consult on Renewable/Solar Energy topics as needed – eg. Solar on New Homes.

TERM OF AGREEMENT

The term of this agreement shall be from July 1, 2006 until June 30, 2007.

ADVERTISING, MARKETING, AND PUBLIC RELATIONS

Lodi and Rahus will share in the responsibility of any marketing and public relations associated with this project.

INSURANCE

Rahus agrees to maintain a \$1,000,000 general liability policy, vehicle liability policy, and workers compensation policy at all times for actions performed under this agreement. Lodi will be named co-insured/additionally insured on all policies.

CONTRACT PRICE AND TERMS

The overall budget for this project is not to exceed **\$25,000** through June 30, 2007. Rahus will be compensated for services rendered within 30 days of completion and final billing. Billing will be on a time and materials basis.

Hourly rates are as such:

Name	Position	Hourly Rate
Tor Allen	Executive Director Renewable Energy Specialist	\$85
Hal Aronson	Associate, Renewable Energy Educator	\$75
John Perlin	Associate, Solar Historian, Presenter	\$75
Anne McFarlin	Associate, Graphics	\$85
Dena Allen	Education Specialist (Curriculum development, teacher workshops)	\$65
Clay Atchison	Associate, Instructor, Graphic Design, Video Specialist	\$75

Budget

Item	Budget
Solar Schoolhouse Olympics - includes coordinator, prizes, event kits, day of event support, pre-event classroom support	\$5,000
Solar Schoolhouse Summer Institute for Educators sponsorships	\$2,100
Sustainable Solutions Grants for Educators, max: \$750/ea	\$3,000
Teacher professional development workshops	\$3,900
Energy Smart Workshops/Consulting - Renewable Energy	\$6,000
Materials distribution - YSH guidebook, additional kits, posters, displays	\$5,000
Total	\$25,000

COMPLIANCE WITH LAWS, PERMITS, AND LICENSES

Rahus shall maintain all applicable permits, licenses, and fees necessary to perform this contract. Rahus will also be responsible to ensure that any and all sub-contractors hired in connection with this contract maintain all applicable permits, licenses, fees, and insurances necessary to perform under the terms and conditions of this contract.

INDEMNITY CLAUSE

Rahus shall indemnify, defend, and hold harmless the City of Lodi, the City of Lodi Electric Utility, it's City Council, directors, officers, agents, and employees against all claims, loss, damage, expense, and liability arising out of or in any way connected with the performance of this contract and excepting only such loss, damage, or liability as may be caused by the intentional acts or sole negligence or the City of Lodi, and the City of Lodi Electric Utility.

AGREED AND ACCEPTED THIS _____ DAY OF _____ 2006

Tor E. Allen
Executive Director
The Rahus Institute

Manager, City of Lodi

Attorney, City of Lodi



PROGRAM PROPOSAL

Prepared for:

Lodi Electric Utility

April 2006

Submitted by:

Dave Munk, Program Manager



EXECUTIVE SUMMARY

Challenge – Efficient use of energy and water is essential for environmental and economic health. Yet it is difficult to design and implement programs that generate immediate, cost-effective savings results while simultaneously shaping new long term awareness and habits regarding resource efficiency. Budget and staff constraints, along with customer resistance to change, pose additional obstacles to program success.

Utilities are also pressured to fulfill additional objectives, such as demand management, branding, customer information, audits, market transformation and improved public image, while maintaining cost effectiveness.

Solution – The award-winning **LivingWise®** program produces a superior return on dollars spent. It directly solves these challenges of measurable conservation impact and cost effectiveness through a proven program format, featuring turnkey programs guaranteed to deliver quantifiable results by combining kits containing efficiency devices for home installation with creative education techniques, that inspire families to adopt new resource usage habits.

Students receive a kit of energy and water efficient devices, which are taken home, installed, and the learning experience shared with family members. They work on subjects required by state learning standards to understand and appreciate the value of natural resources in everyday life. This stimulating program shapes new behaviors and achieves instant savings results through a cost-effective mix of new product installation and resource efficiency knowledge, using the best messengers – children!

Additional Benefits –The quantifiable savings often serve as a basis for excellent PR and company image opportunities through local media coverage. The program provides complete implementation services, can be customized to the needs of the target audience, and can also deliver benefits of customer audit information, strategic partnerships/cost-sharing and promoting other company programs.

LivingWise® at a glance:

- ◆ Proven to deliver lasting quantifiable results and measurable savings.
- ◆ Simple and very cost-effective.
- ◆ All implementation services are included.
- ◆ Features a fun and interactive curriculum to shape new family habits and usage.
- ◆ Includes Resource Action Kits to directly install resource-efficient technologies in the home.

Savings Results – This proposal for the Lodi Electric Utility **LivingWise®** Program covers the implementation of a 442 household program. Projected resource savings from the program exceed 1,370,625 kWh of electricity (assumes 20% electric water heat), 150,280 therms of gas (assumes 80% gas water heat), and 3.2 million gallons each of water and wastewater.

Funding - Total program cost is \$19,978.40, based on a cost of \$41.25/student, plus sales tax and shipping. This includes all implementation, training, verification, and reporting.

PROGRAM GOALS

- ◆ Reduce residential energy and resource use.
- ◆ Develop community awareness about the importance of environmental issues.
- ◆ Reshape family habits and usage.
- ◆ Demonstrate cost effectiveness based on superior savings results, complete turnkey implementation, and satisfaction of sponsor objectives.
- ◆ Help generate excellent media coverage, build brand awareness and strengthen LEU's community image.
- ◆ Promote other LEU community programs.

PROGRAM OBJECTIVES

The LW program will reach 442 sixth grade students and teachers in Lodi during the 2006-2007 school year. The Program will fulfill the following objectives:

- ◆ Install 442 compact fluorescent lamps, 442 nightlights and 442 FilterTone® alarms
- ◆ Replace 442 showerheads and 442 kitchen aerators
- ◆ Check 600 toilets for leaks
- ◆ Collect household audit information for 442 homes
- ◆ Reshape family resource usage habits and attitudes for 442 households

PROGRAM DESCRIPTION

- ☑ **Delivers Measurable Savings Results.** Students conduct a simple home audit to determine areas where their families are using water and energy inefficiently. Family's work together to improve efficiency by changing usage habits, and through the installation of the conservation technologies provided to each student in their Resource Action Kit. Kits include conservation measures and simple test equipment to enable the family to determine the energy and resource conservation opportunities that exist in their home, while providing the installable resource conservation technologies to achieve quantifiable savings. These activities foster family cooperation and help educate parents on the benefits of resource conservation. Results are reported via affidavits signed by parents.
- ☑ **Energy Education.** The **LivingWise®** Program combines classroom activities with in-home hands-on retrofit projects that students perform with their families. This combination yields quantifiable conservation results and strong practical learning, effectively shaping new resource usage behavior and attitudes. The **LivingWise®** Program is fully turn-key and comprehensive, providing all materials, supplies, teaching tools and support needed by teachers and participants. Learning is measured via pre/post test comparisons.
- ☑ **Builds New Resource Habits.** New habits result from effective education and personal action. The program provides a wide range of teaching tools to maximize learning. The Adventures in Green Valley® CD-ROM is a powerful tool that helps develop new habits and behaviors, while providing information in a fun format. The feature-rich program website is a great resource for classes, teachers, and individuals, with information, chat room, and contests. Beyond these computer resources, the **LivingWise®** program provides videos, posters, workbooks, and varied activities to reach all types of learning preferences. New knowledge translates to action at home with the installation activities. Families discover first-hand the value of the new *knowledge and habits* they have acquired.

PROGRAM IMPLEMENTATION

Complete implementation services are included with the program. All training and communication with teachers, distribution of materials (program contents list is attached), collection of data, and report preparation are handled by the Program Fulfillment Center. *There is no obligation or additional cost to sponsors for any of these roles.*

LivingWise® Resource Action Kits are customizable and contain the following (can be modified):

- Adventures in Green Valley® CD-ROM Game
- 60w equivalent CFL
- Energy & Water Efficient Showerhead 2.0 G.P.M. max
- Electro luminescent Night Light
- FilterTone® Alarm
- Water Efficient Faucet Aerator (2.0 G.P.M. max)
- Air Temperature Monitor
- Water Temperature Check Card
- Toilet Leak Detector Tablets
- Mini Tape Measure
- Resource Facts Wheel Chart
- Flow Rate Test Bag
- Teflon Tape
- Recycled Cardboard Box

LivingWise® Student Activity Guides provide a concise set of activities to build knowledge of the importance and value of natural resources and their conservation. Emphasis is placed on home usage of energy and water resources, including efficiency and renewable energy,

Teachers receive complete Activity Guides and Answer Keys, plus Pre and Post Tests with answer keys, supplemental activities, quizzes, games and puzzles. Spanish language materials are offered. Activities cover all subject areas and address National and State Learning Standards.

TEACHER ACCEPTANCE

Program success is directly correlated to proactive teacher support and involvement. The design and content of the program is proven to motivate teachers to sign up and participate enthusiastically. There are several incentives offered by the program to ensure this:

1. The program satisfies numerous State Standards and helps teachers meet their teaching requirements.
2. The program is flexible in structure, allowing teachers to schedule activities around existing lessons. The program can be run in a week or a few months.
3. Program content and activities are comprehensive and well described through accompanying materials so that additional in-service training sessions are generally not necessary.
4. Students LOVE the program, and are both stimulated and highly motivated by the Resource Action Kits and the hands-on projects. Happy students mean happy teachers!

5. The program overcomes an often-challenging hurdle of parental involvement by reaching beyond the classroom to involve parents in their children's education and the schools.
6. Additional contests, promotions, and contact are used to maximize response.

PROGRAM RESULTS

Based on program experience, the following results are expected, using a conservative 10-year measure life. A breakdown of calculations is attached. Savings will continue into the future, since the installed hardware will remain in place, and new usage habits, attitudes, and knowledge will persist.

Projected 10-Year Savings Results:

- ◆ 1,370,625kWh of electricity (assuming 20% electric water heat)
- ◆ 150,280 therms of gas (assuming 80% gas water heat)
- ◆ 3 million gallons of water
- ◆ 3 million gallons of wastewater

Qualitative results include the following:

- ◆ Increased knowledge of conservation issues by students and families confirmed by pre and post test comparisons
- ◆ Adoption of new resource conservation habits
- ◆ Favorable PR and community recognition for sponsors
- ◆ The opportunity for strategic alliances with other sponsors
- ◆ Cross promotion of other LEU programs to pre-qualified households
- ◆ Increased teacher participation in environmental and resource education programs
- ◆ Improved student attitudes toward school and greater parental involvement
- ◆ High levels of teacher and school satisfaction, reinforced by student enthusiasm, teacher incentives, and community recognition for the program and results

PROGRAM TIMETABLE

September 2006	Sponsor funding commitment
September –December 2006	Contact schools and teachers to collect participation commitments
October 2006 - March 2007	Program and kit delivery
October 2006 - May 2007	Program implementation
July 2007	Program Summary Report delivered

PROGRAM BACKGROUND

The first version of the Learning to be Water Wise and Energy Efficient® Resource Action Program was introduced in 1994, following extensive market research and material development. The unique and award-winning blend of environmental teaching materials combined with a Resource Action Kit was the first school-to-home, hands-on conservation program available. Tremendous acceptance caused participation to grow to more than 800,000 participants within the first few years. The emergence of new environmental issues led to the evolution of the Programs to include coverage of pollution, transportation, and renewable resources. These topics are now included in the newest Resource Action Program – **LivingWise®**.

PROGRAM AWARDS

- ◆ 1997 EPA Award for Environmental Excellence
- ◆ Council for Environmental Sustainability Certificate of Environmental Achievement
- ◆ Governor's Clean Texas Award for Environmental Excellence 1996 and 2002
- ◆ Texas Water Conservation Association: Outstanding Water Conservationist of the Year
- ◆ U.S. Bureau of Reclamation Water Conservation & Education Mentor Award 1995, 1998
- ◆ Renew America/Awards Council for Environmental Sustainability Certificate of Environmental Achievement
- ◆ 2002 Spirit of the Land Award for Excellence in Environmental Education
- ◆ 2002 Colorado Alliance for Environmental Education Award for Excellence

PROGRAM BUDGET

Program costs are all-inclusive. There are no additional charges for implementation, reporting, training or materials. *Additionally, no manpower is required from sponsors.*

LivingWise® Program	\$41.25 per student or teacher plus sales tax (7.75%) and shipping @ \$.75 each.
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For 442 families, the cost will be \$19,978.40, including sales tax and shipping.

CONTRACT

This contract between The City of Lodi (hereinafter "Lodi") and Resource Action Programs, a California Corporation (hereinafter "RAP"), sets forth the terms and conditions under which RAP will provide the services described herein. Lodi and RAP agree as follows:

SCOPE OF SERVICES

RAP agrees to administer the **LivingWise® Program** (LW) for the City of Lodi, in strict conformity with the terms and conditions of this contract. RAP will provide all necessary implementation services to deliver the LivingWise® Program for up to four hundred forty-two (442) Lodi households under this agreement.

Implementation Services will be provided by RAP, and are outlined in the attached program proposal dated April 2006. These services include:

- all teacher/educator outreach and enrollment
- teacher training and ongoing support
- distribution of materials (program contents list is provided in proposal)
- data collection and tabulation
- report preparation

TERMS OF AGREEMENT

The term of this agreement shall be from the earliest possible implementation date after Lodi City Council approval, through June 30, 2007, or whenever funds are exhausted, whichever comes earlier.

ADVERTISING, MARKETING, AND PUBLIC RELATIONS

All advertising, marketing and/or outreach to teachers or educators in the Lodi School District will be the responsibility of RAP.

INSURANCE

For actions performed under this agreement, RAP agrees to maintain all necessary insurance requirements set forth by Lodi (as identified in the instructions/requirements for insurance coverage page).

CONTRACT PRICE AND TERMS

RAP will invoice for all shipped LW program units requested by teachers at a unit cost of \$44.00, plus \$.75 shipping and any applicable taxes. Invoices will be payable within thirty (30) days of the invoice date.

The total project budget cost will not exceed \$20,000; the goal of the program is to impact between 400 and 442 Lodi students and their families.

COMPLIANCE WITH LICENSES

No additional anticipated licenses required to comply with this project.

INDEMNITY CLAUSE

RAP shall indemnify, defend, and hold harmless the City of Lodi, the City of Lodi Electric Utility, it's City Council, Directors, Officers, Agents, and employees against all claims, loss, damage, expense, and liability arising out of, or in any way connected with the performance of this contract and excepting only such loss, damage, or liability as may be caused by the intentional acts or sole negligence of the City of Lodi, and the City of Lodi Electric Utility.

**2006-2007 LivingWise Program
CONTRACT ACCEPTANCE**

THE ABOVE TERMS AND CONDITIONS ARE AGREED UPON, AND
ACCEPTED ON THIS _____ DAY OF JULY, 2006.

CITY OF LODI

Blair King
CITY MANAGER

Date

Resource Action Programs

Date

ATTEST:

Jennifer M. Perrin
City Clerk

APPROVED AS TO FORM:

D. Stephen Schwabauer
City Attorney

RESOLUTION NO. 2006-153

A RESOLUTION OF THE LODI CITY COUNCIL APPROVING
PUBLIC BENEFIT PROGRAM FUNDS, AND FURTHER
AUTHORIZING THE CITY MANAGER TO EXECUTE
NECESSARY PROFESSIONAL SERVICES AGREEMENTS

=====

NOW, THEREFORE, BE IT RESOLVED that the Lodi City Council hereby approves Public Benefit Program funds for the following program extensions and/or renewals as follows and as shown on the project descriptions marked Exhibit A attached hereto:

- 1) Lodi Solar Schoolhouse Project – \$25,000.00
- 2) Lodi LivingWise Program – \$20,000.00
- 3) Lodi Appliance Rebate Program – \$30,000.00
- 4) Lodi Energy Efficient Home Improvement Rebate Program – \$70,000.00
- 5) Lodi Commercial Rebate Program – \$25,000.00
- 6) Industrial Customer High Efficiency Rebate Program – \$140,000.00

BE IT FURTHER RESOLVED that the City Manager is hereby authorized and directed to execute professional services agreements required for each Public Benefit Program.

Dated: August 2, 2006

=====

I hereby certify that Resolution No. 2006-153 was passed and adopted by the City Council of the City of Lodi in a regular meeting held August 2, 2006, by the following vote:

AYES: COUNCIL MEMBERS – Beckman, Hansen, Johnson, Mounce,
and Mayor Hitchcock

NOES: COUNCIL MEMBERS – None

ABSENT: COUNCIL MEMBERS – None

ABSTAIN: COUNCIL MEMBERS – None


JENNIFER M. PERRIN
Interim City Clerk

EXHIBIT A

1. **Lodi Solar Schoolhouse Project - \$25,000:** Allocate funds to continue this energy education project for private and public school students and educators for FY07. The project funds the annual Lodi Solar Schoolhouse Olympics, teacher mini-grants for solar-related projects, and professional services provided by the Rarus Institute (this organization provides assistance to Electric Utility staff regarding renewable energy resources, such as solar and wind technology). Also by way of this Council action, a professional services contract with the Rarus Institute will be extended for the 2006-2007 fiscal year.
2. **Lodi LivingWise Program - \$20,000:** Allocate funds to extend this energy conservation program for FY07. This program provides students and teachers at Lodi area schools with a useful tool that demonstrates energy and water conservation. For the 2006-2007 school year, EUD is once again proposing to provide up to 442 energy and water conservation kits to 6th grade students throughout Lodi. Each kit contains a compact fluorescent lamp, an Electro luminescent (energy efficient) Night Light, a low-flow showerhead, faucet aerators, a water leak test for toilets, teflon tape, tape measure, air temperature monitor, an energy efficiency CD-ROM game, tips on energy/water conservation, and specific ways to weatherize/insulate the home. There are kit pre-installation and post-installation course discussions that are provided to the instructors, to ensure that the students are fully engaged in the project. To "kick-off" the project, an Electric Utility staff member visits each classroom to reinforce the significance of the project and discuss the importance of energy/water conservation.
3. **Lodi Appliance Rebate Program - \$30,000:** Allocate funds to extend this energy conservation program for FY07. This program provides specific rebates for energy efficient refrigerators, energy efficient dishwashers, and energy/water efficient clothes washers. Under the program, eligible customers would receive the following rebates:

> EnergyStar® refrigerator	\$50 rebate
> EnergyStar® dishwasher	\$25 rebate
> EnergyStar® clothes washer	\$75 rebate

Customers must purchase the aforementioned home appliance(s) from one of the six participating Lodi retailers, including: Anderson's Maytag, Ben's Appliance, Kundert & Bauer, Les' Appliance, Lowe's of Lodi, and Reo's Appliance.

EnergyStar® appliances consume, on average, twenty percent to thirty-five percent less electricity annually than a standard home appliance (refrigerator, dishwasher and clothes washer), which makes the purchase and installation of a high efficiency home appliance an extremely attractive, and cost effective, energy conservation measure.

4. **Lodi Energy Efficient Home Improvement Rebate Program - \$70,000:** Allocate funds to extend this energy conservation program for FY07. This program provides specific rebates for air duct replacement, air duct repair, attic insulation, radiant barriers, whole house fans, attic fans, ceiling fans, and windows/shade screens/window tinting for residential customers.

For the 2006-2007 fiscal year, the EUD is proposing the following conservation measures, and rebate amounts:

> air duct replacement	\$500
> air duct repair	\$150
> attic/wall insulation	\$ 0.15/sq. ft.
> radiant barrier/thermal shield	\$150
> whole house fan	\$100
> attic fan	\$ 40
> ceiling fan (max. 2 per address)	\$ 25
> shade screens/window tinting	\$ 0.50/sq. ft.

Note- The maximum allowable rebate under this program is \$250 per customer service address, with an additional \$150 allowance for air duct repairs, or an additional \$500 allowance for air duct replacement, if eligible. Customers must also consent to potential pre- and post-inspections of their property.

By installing some, or all, of the aforementioned energy conservation measures, residential customers may decrease monthly energy consumption from five percent, to as much as thirty percent (the actual energy savings will vary depending upon the number of conservation measures installed, the quality of installation and personal energy use patterns).

5. **Lodi Commercial Rebate Program - \$25,000:** Allocate funds to provide rebates to commercial customers under the electric rate classification of G-1 and G-2 for FY07. Specifically, the program offers a dollar-for-dollar rebate of up to \$250 for the purchase and installation of any/all of the following energy conservation improvements:

- ceiling fans; attic fans/ventilators; weather-stripping; attic insulation; air duct replacements/repairs; window tinting/shade screens/awning covers; Heating, Ventilation and Air Conditioning (HVAC)/refrigeration (such as an annual diagnostic and preventative maintenance service for each HVAC unit and/or refrigeration system).

➤ In addition, eligible customers may receive a rebate of 15 percent or \$750 (which ever amount is less), for installing a high efficiency mechanical system (13+ Seasonal Energy Efficiency Rating (SEER) air conditioner), or a lighting improvement/retrofit.

Participating customers must be on the published G-1 or G-2 electric rate schedule, current on all City of Lodi utility charges and consent to a potential pre- and post-inspection. Since the programs inception, over 600 small businesses have reduced energy consumption by installing some or all of the aforementioned energy efficiency measures, and received a rebate from the City of Lodi. The average annual energy savings that can be achieved is 5 percent to 25 percent, depending upon the energy efficiency measure(s) installed.

6. **Industrial Customer High Efficiency Rebate Program - \$140,000:** Allocate funds to extend this energy conservation program for FY07. Eligible customers will have the opportunity to receive a maximum rebate of \$10,000 for qualifying projects, including: lighting retrofits, process/manufacturing equipment & heavy refrigeration improvements, chillers & mechanical equipment change-outs, building automation/energy management control systems improvements, and building envelope retrofits.

An approved rebate will be based upon the following criteria:

- a minimum of 10 percent electric energy savings per energy efficiency measure installed;
- a minimum of 10 percent operations and maintenance savings per energy efficiency measure installed; and
- inclusion of all required engineering, design, labor, and materials documentation (a customer seeking a utility rebate must provide a detailed description of the energy efficiency project; calculated energy savings audit associated with the project; calculated operations and maintenance savings associated with the project; total "turn-key" cost of the project; design/engineering specifications, design drawings, equipment manufacturer cut sheets; baseline energy consumption data of the existing equipment being removed).

The total rebate available in a 12-month period for qualifying projects (one per customer of record) is \$10,000. The rebate is calculated on total kilowatt-hour (kWh) savings; for FY07 program, the rebate per kWh of savings will be \$0.15 (i.e., if a customer develops, and presents to the utility, a project that will save 50,000 kWh in a year, the total rebate $50,000 \text{ kWh} \times \$0.15 = \$7,500$).

"The utility will advertise an "open season" for accepting industrial rebate applications and will award those proposals that are judged to have highest efficiency benefit/cost ratio. Based on past experience, EUD expects to receive qualified proposals well in excess of the proposed funding level."

EUD's Public Benefit Program

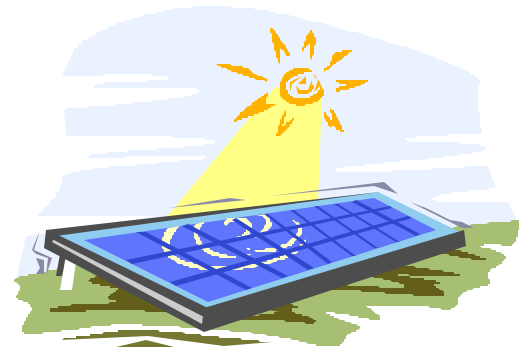
August 2, 2006





Background

- PB Program Created by AB 1890 (1995)
- AB 995 extended through 2011
- Requires CA electrics to collect and spend 2.85% of revenue on qualified PB programs





Qualified PB Programs

- Demand-side management (efficiency/conservation)
- Renewable resources & technology
- Research, development & demonstration
- Low-income services





Lodi PB History

- 2.5% rate increase for PB (2/4/98)
- PB programs kicked-off in late 1998
- A variety of different PB programs funded over the years





PB Expenditure History

Year	Electric Operating Revenue	PB \$ Collected (Actual)	State Mandated At 2.85%	PB \$ Expended (Actual)	Eligible Geysers Expenditures	Eligible Low-Income Rate \$
1998	\$35,495,665	\$129,730	\$168,604	\$12,236	\$149,560	\$5,451
1999	\$36,327,295	\$895,292	\$1,035,328	\$473,192	\$120,852	\$33,986
2000	\$37,743,482	\$899,559	\$1,075,689	\$1,006,889	\$125,723	\$33,366
2001	\$39,190,121	\$924,960	\$1,116,918	\$1,509,983	\$389,296	\$69,759
2002	\$46,456,737	\$1,857,219	\$1,324,017	\$1,278,016	\$1,035,016	\$107,593
2003	\$47,923,565	\$948,923	\$1,365,822	\$737,358	\$540,579	\$156,896
2004	\$51,892,213	\$1,006,690	\$1,478,928	\$750,479	\$549,127	\$208,893
2005	\$52,870,963	\$1,037,170	\$1,506,822	\$847,426	\$345,761	\$230,706
2006	\$58,033,104	\$1,077,241	\$1,653,943	\$704,164	\$760,555	\$282,252
	\$405,933,144	\$8,776,785	\$10,726,072	\$7,319,742	\$4,016,469	\$1,128,901



\$12,647,441



1998-2006 Statistics

PB Expenditures	\$12,647,441
PB Requirement	\$10,726,073
“Carry-over”	\$1,921,368

Note: EUD’s PB balance is presently ~\$1.2 million “underfunded” because qualified geothermal and low income expenses have not been considered.



FY07 PB Requirement

- 2.85% of Total Sales Revenue
- FY07 Sales Revenue Projection
 - \$64 million
- FY07 PB requirement is **\$1.824 million**
- FY07 PB budget is **\$1.528 million**
- Difference (~\$300K) will drawdown EUD's "carry-over" balance



FY07 PB Programs/Budget

Energy Efficient Home Rebates	\$70,000
Appliance Rebates	\$30,000
Energy Audits	\$5,000
Refrigerator/Freezer Recycling	\$20,000
“Helping Hands” Project	\$20,000
C.A.R.E. Program	\$40,000
Commercial Energy Services	\$25,000
Industrial Efficiency Rebates	\$140,000
Lodi Library Lighting Retrofit	\$40,000
Solar Schoolhouse Project	\$25,000
“LivingWise” Project	\$20,000
Lodi Grape festival Solar Project	\$50,000
PB Administration	\$221,500
Geysers Effluent Enhancement	\$572,000
Lodi SHARE Discounts	\$250,000

\$706,500

~\$1.53 million



FY07 Budget Breakdown

Demand-side Management	36%
Renewable Energy	42%
Research & Development	2%
Low Income	20%





Tonight's Actions

- **Contract with Resource Action Programs (\$25K)**
 - Lodi LivingWise Program
- **Contract with The Rahus Institute (\$25K)**
 - Lodi Solar Schoolhouse Program
- **Energy Efficiency Rebate Programs (4)**
 - Lodi Appliance Rebate Program (\$30K)
 - Lodi Energy Efficiency Home Improvements (\$70K)
 - Lodi Commercial Rebate Program (\$25K)
 - Industrial Customer High Efficiency Rebates (\$140k)





Questions/Comments



Solar Schoolhouse prepares students for a renewable future

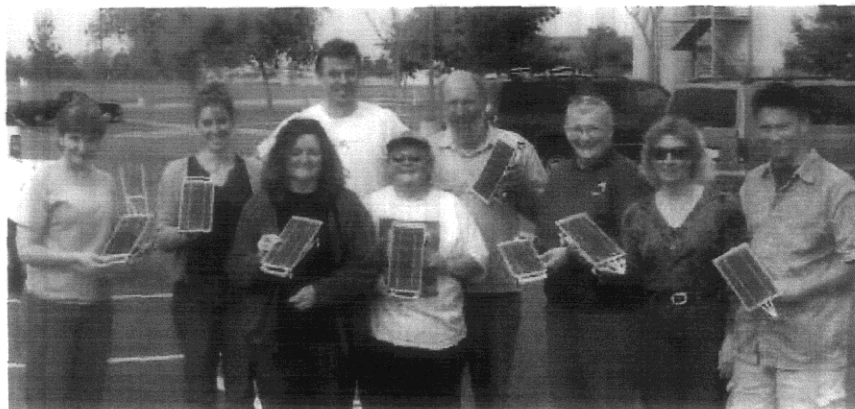
ask Customer Service and Programs Manager Rob Lechner why City of Lodi Electric Utility sponsors the Solar Schoolhouse Olympics at schools in its service territory and he makes it clear. "We want to train young people to look at renewable energy as the hope for the future."

For the third year in a row, Lodi and Imperial Irrigation District teamed with the Rarus Institute to challenge students to demonstrate their knowledge of photovoltaic technology. More than 250 students from six high schools and five middle schools participated in the IID event. Lodi opened its Olympics to K-12 students and had more than 300 participants. "Each year, we get more participants," said IID Demand Side Manager Phil Falkenstein.

The Solar Schoolhouse Olympics is a component of Rarus's Solar Schoolhouse educational program. "Rarus developed Solar Schoolhouse to get renewable energy issues into the science curriculum in public schools," explained Executive Director Tor Allen. "We launched the Olympics two years later to extend solar power beyond the science classroom."

Solar Olympics

The plan was a success from the start. "When I sent out the guidelines for the first Olympics, English teachers, social studies teachers and art teachers responded, as well as science teachers," said



A group of Lodi teachers show off their solar creations at a April 2003 workshop. (Photo by Rarus Institute)

Allen. The Solar Olympics give students the chance to put what they learned from the curriculum into practice. Using solar panels and materials contributed by Rarus and sponsors, participants build model solar homes, solar fountains and PV-powered cars and bake cookies in solar ovens.

"One art class assigns the Solar Olympics art competition as its final assignment, so we get a big selection of student art pieces to choose from for the T-shirts," Allen said.

The solar "racecars" are very popular with Lodi's Olympians, said Lechner. "It's really impressive to see how much their models have advanced in just three years," he noted.

Lechner's son's sixth-grade science class was among the first to build a solar-powered car to compete. The utility awards \$1,000 mini-grants to teachers to help fund project construction.

Falkenstein agreed that solar car races were a big hit at IID's event,

"but the students in the other events might argue that."

"The kids make some incredible model homes," added Allen. "One welding class turned their solar panel, sheet metal and fountain plumbing into a 12-foot sculptural piece."

The students learn Solar Olympic skills and discover a broad spectrum of energy issues through Solar Schoolhouse's curriculum of hands-on projects and Web-based learning. Rarus, a nonprofit research institute that focuses on resource efficiency, developed the curriculum to promote what Allen calls "energy literacy."

Teachers learn

Rarus piloted the first Solar Schoolhouse curriculum in Alameda County, Calif., in 2001. Since then, teachers from 28 schools, mostly in California, have attended the summer training sessions.

See *SCHOOLHOUSE*, page 4

Schoolhouse

from page 3

The week-long workshop gives teachers a crash course in renewable energy and introduces them to the science behind solar technology as well as practical applications. They learn how to build measurement instruments, collect solar data, design classroom experiments and build working solar-powered projects. The first workshops ran for four days, Allen recalled. "When we asked how Rahus could improve the training, teachers said, 'Add another day.'"

In addition to the intensive summer school, Solar Schoolhouse conducts one-day workshops throughout the year. The shorter sessions are designed to help teachers incorporate hands-on lessons into the classroom. Schools can also get educational kits and special projects from Solar Schoolhouse.

Flexible program

The menu of products and programs available through Solar Schoolhouse helps utilities and schools create educational partnerships tailored to different needs and budgets. Lodi and IID support their extensive programs with funding from California's public benefits charges, established in the state's 1996 electricity restructuring bill. Southern California Public Power Association is considering a package deal that will allow members with tight budgets to

offer Solar Schoolhouse training to teachers in their service areas.

Sacramento Municipal Utility District came up with a different strategy to fund its first teacher training last year. The utility didn't have the budget for a partnership with Rahus, but it did have used PV panels. "We worked out an old-fashioned barter," said Allen.

Brawley Union High School's regional occupational program builds and sells houses and reinvests the proceeds in the program. IID approached the school about adding solar power to some of the houses. "Rahus trained the teachers and the students as part of the deal," said Falkenstein. "It was true recycling."

Three Brawley ROP students went on to attend Solar Energy International training in Carbondale, Colo. "SEI will help them find jobs in the solar industry," Falkenstein said.

More than public relations

If Solar Schoolhouse is creating a pool of future solar contractors, it is also creating a growing demand for their services. "Each time we hold the event, we get calls from parents who want to talk to contractors," said Lechner.

Parents' interest, he added, follows that of their children—"Call it the 'trickle up effect'," said Lechner. "The Solar Olympics has helped Lodi reach older consumers."

Getting kids to think about energy in general is an important step toward meeting renewable

energy and conservation goals, noted Falkenstein.

Allen, who is part of the California Photovoltaic Utility Managers working group, has noticed the change in the industry view of green programs. "It used to be a good public relations move," he said. "More and more, though, renewable energy and energy efficiency are seen as key strategies for controlling costs now and securing our future," he said.

Lechner agreed, pointing out that every kilowatt saved, or produced by a solar panel, replaces a kilowatt of supplemental power his utility would otherwise have to buy. "We save money and that helps to keep our rates stable."

Rising energy prices, increasing demand and renewable portfolio standards are encouraging more utilities to embrace the technology. Rahus has been getting more requests and queries from outside California and Allen is packaging Solar Schoolhouse materials that are not specific to any state. "We're exploring ways to work with utilities and educators all over the country," he said.

That's good news to utilities discovering that educated consumers are one of their most valuable renewable resources. ⚡